

Claims

- 5 1. A method for the production of a work piece by the successive compacting, by means of electromagnetic radiation or particle radiation, of powdered starting material (3) that has been applied horizontally in layers, so that each layer consisting of at least one trace comprises two substantially vertical lateral faces and one substantially horizontal upper face which, in turn, forms the basis for a possible subsequent layer, wherein at least one of the two vertical side walls is subject to mechanical finishing subsequent to the compacting of said powdered starting material (3) that has been applied horizontally in layers, and wherein the work piece (1) to be formed is surrounded by powdered starting material (3) during its production, wherein the mechanical finishing of a vertical side wall of an n^{th} layer is performed after the generation of an $n + x^{\text{th}}$ layer only.
- 10 2. The method according to claim 1, wherein at least one further layer has been produced between the production of the n^{th} layer and the beginning of the mechanical finishing of this layer.
- 20 3. The method according to claims 1 or 2, wherein several layers are finished simultaneously.
- 25 4. The method according to claim 1, wherein several layers are comprised to form layer packages.
- 30 5. The method according to claim 4, wherein the mechanical finishing of the $n - 1^{\text{st}}$ layer package is started after the generation of an n^{th} layer package.
- 35 6. An apparatus for the production of a work piece, in particular by performing a method according to any of claims 1 to 5, consisting of a working table (5) to be lowered which can be covered by a powdered starting material (3), a processing unit (20) that is designed to be vertically and horizontally moveable and can be connected to act with a control device (11), wherein said processing unit (20) comprises at least one radiation source (6) and at least one mirror unit (8) controllable by

an actuating unit (10), so that a beam (18) emanating from said radiation source (6) is guidable on the working table (5) via the at least one mirror unit (8) that is controllable by means of a two-coordinate control in correspondence with a desired component contour, wherein said processing unit further comprises a processing device for the mechanical finishing of substantially vertical faces, and wherein the control device (11) further comprises means for controlling the mechanical finishing of an n^{th} layer with time delay vis-à-vis the completion of an $n + x^{\text{th}}$ layer, depending on the thermal characteristics of the work piece to be produced.